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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/718,789 | 11/24/2003 | Kazunori Hagimoto | SUG-176-USAP | 1591 |
| 28892 | 7590 | 02/03/2006 | EXAMINER | |
| SNIDER & ASSOCIATES P. O. BOX 27613 WASHINGTON, DC 20038-7613 | | | WEISS, HOWARD | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2814 | |

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|---|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/718,789 | HAGIMOTO ET AL.  | |
| | Examiner | Art Unit | |
| | Howard Weiss | 2814 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-13, 21-31, 33-38, 49, 50, 63-66, 68 and 81-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13, 21-31, 33-38, 49, 50, 63-66, 68 and 81-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: SUG-176-USAP

Filing Date: 11/24/03

Continuing Data: none

Claimed Foreign Priority Date: 11/28/02, 12/25/02, 1/31/03, 8/29/03

Applicant(s): Hagimoto et al. (Noto)

Examiner: Howard Weiss

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 to 3, 5 to 13, 21 to 31, 33 to 38, 49, 50, 63 to 66, 68 and 81 to 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasutimi et al. (JP 2001-339100), Carter-Coman et al. (U.S. Patent No. 6,222,207) and Gee et al. (U.S. Patent No. 6,969,874).

Yasutimi et al. show most aspects of the instant invention (e.g. Figure 2) including:

- A compound semiconductor layer **4** including a light-emitting layer **42** and a light extraction surface **44** and made of the claimed materials and sensitive to the wavelength ranges listed
- A silicon device substrate **2** bonded to said compound semiconductor layer
- A multilayered metal reflective layer **3**

Yasutimi et al. do not show the metal reflective layer being Pd/Ag alloy or Ag, Ru, Rh, Re, Os, Ir and Pt based, an Ag-based contact layer as claimed and a silicon-diffusion-blocking layer of the composition claimed.

Carter-Coman et al. teach (e.g. Figures 2) to make a metal reflective layer **34** Ag-based, a contact layer **32** and a silicon-diffusion-blocking layer **36** to produce an light emitting device with high reflectivity after subjected to high temperatures (Column 2 Lines 23 to 34). It would have been obvious to a person of ordinary skill in the art at the time of invention to make a metal reflective layer Ag-based, a contact layer and a silicon-diffusion-blocking layer as taught by Carter-Coman et al. in the device of Yasutimi et al. to produce an light emitting device with high reflectivity after subjected to high temperatures.

Gee et al. teach (e.g. Figures 3 and 4) to make ohmic contacts **20**, reflective layers **24** and diffusion barriers of Pd/Ag alloy or Ag, Ru, Rh, Re, Os, Ir and Pt based (Column 4 Lines 36 to Column 38) to provide a low resistance, good optical reflectance, good adhesion and to control unwanted diffusion during annealing (Column 4 Line55 to Column 5 Line 1). It would have been obvious to a person of ordinary skill in the art at the time of invention to make ohmic contacts, reflective layers and diffusion barriers of Pd/Ag alloy or Ag, Ru, Rh, Re, Os, Ir and Pt based as taught by Gee et al. in the device of Yasutimi et al. to provide a low resistance, good optical reflectance, good adhesion and to control unwanted diffusion during annealing.

Response to Arguments

3. Applicant's arguments with respect to Claims 1 to 3, 5 to 13, 21 to 31, 33 to 38, 49, 50, 63 to 66, 68 and 81 to 88 to have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

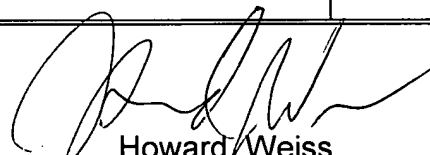
more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

5. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via Howard.Weiss@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

7. The following list is the Examiner's field of search for the present Office Action:

| Field of Search | Date |
|--|--------------|
| U.S. Class / Subclass(es): 257/ 96, 98 | thru 1/31/06 |
| Other Documentation: none | |
| Electronic Database(s): EAST, IEL, PAJ, IP | thru 1/31/06 |

HW/hw
31 January 2006



Howard Weiss
Primary Examiner
Art Unit 2814